even ⊕ ↑↑ even ⊖ ↓↓
odd ⊖ ↑↓ odd ⊕ ↓↑

Algebra 2B

Review – Sections 5.1-5.2

ANSWER KEY

Name: _____

Date: _____ Pd: _____

Put each polynomial in standard form. Then determine the degree, number of terms, end behavior and number of u-turns (humps).

1) $y = 7x^2 - 5x^3 + 4x - 6x^2$

Stand. Form: $-5x^3 + x^2 + 4x$

Degree: 3 Terms: 3

End. Beh: ↑↓ U-turns: 2

2) $y = 14x^4 - 14x^8 + 14x - 14x$

Stand. Form: $-14x^8 + 14x^4$

Degree: 8 Terms: 2

End. Beh: ↓↓ U-turns: 7

3) $y = -3x^2(2x - 5x^3 + 3x^2)$

$-6x^3 + 15x^5 - 9x^4$

Stand. Form: $15x^5 - 9x^4 - 6x^3$

Degree: 5 Terms: 3

End. Beh: ↓↑ U-turns: 4

4) $y = (2x^2 - 5)(x^2 - 1)$

$2x^4 - 2x^2 - 5x^2 + 5$

$2x^4 - 7x^2 + 5$

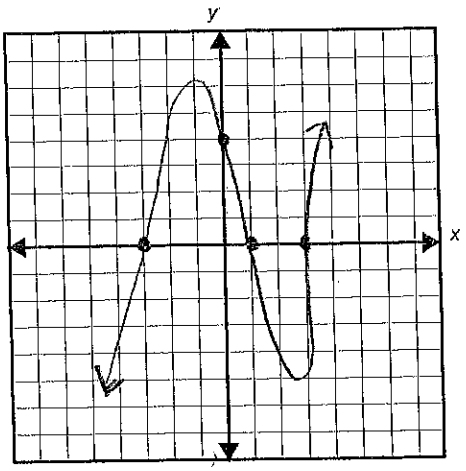
Stand. Form: $2x^4 - 7x^2 + 5$

Degree: 4 Terms: 3

End. Beh: ↑↑ U-turns: 3

Determine the sign of the leading coefficient and the degree of the polynomial function for each graph below:

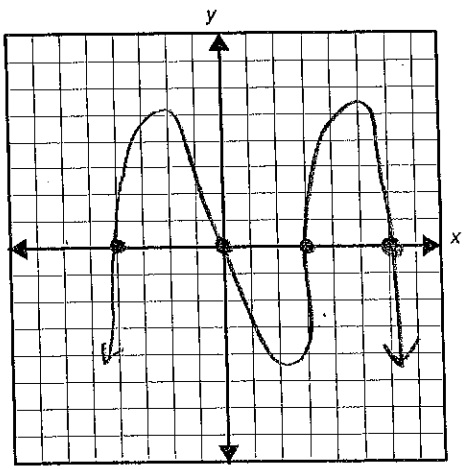
5)



Lead Coefficient: (POSITIVE) or NEGATIVE

Degree: 3

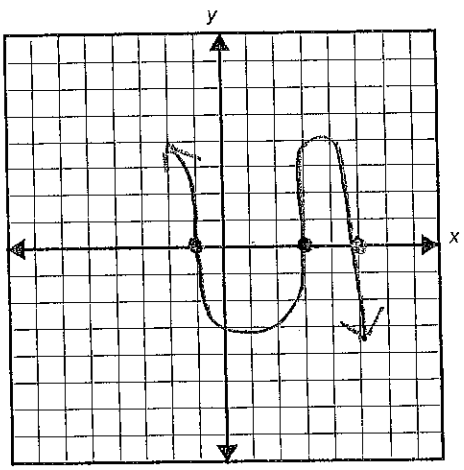
6)



Lead Coefficient: POSITIVE or (NEGATIVE)

Degree: 4

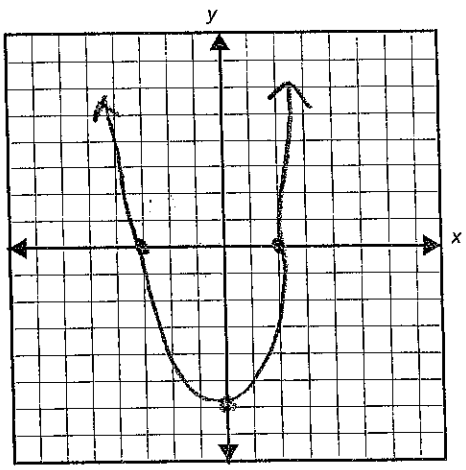
7)



Lead Coefficient: POSITIVE or (NEGATIVE)

Degree: 3

8)



Lead Coefficient: (POSITIVE) or NEGATIVE

Degree: 2

Graph each polynomial:

9) $y = -(x-1)(x+4)(x+2)$

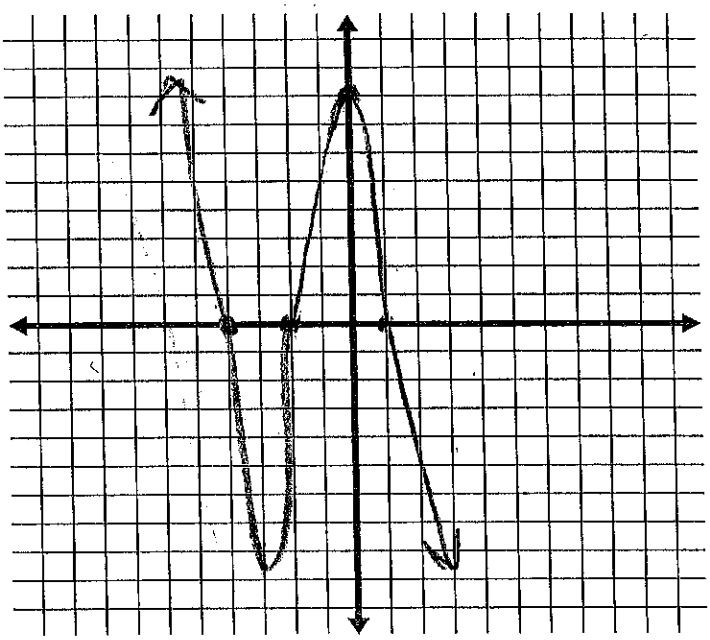
$x-1=0$ $x+4=0$ $x+2=0$

$x=1$ $x=-4$ $x=-2$

$-(0-1)(0+4)(0+2) =$

$-(-1)(4)(2)$

odd (−)



Zeros: $-4, -2, 1$

y-int: $(0, 8)$

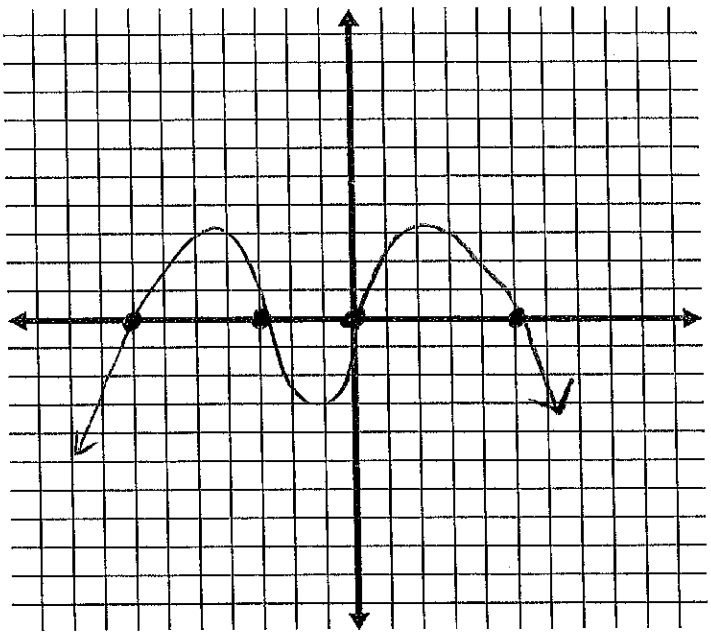
End Behavior: $= \uparrow\downarrow$

10) $y = -x(x+3)(x-5)(x+7)$

$-x=0$ $x+3=0$ $x-5=0$ $x+7=0$

$x=0$ $x=-3$ $x=5$ $x=-7$

even (−)



Zeros: $-7, -3, 0, 5$

y-int: $(0, 0)$

End Behavior: $\downarrow\downarrow$

11) $y = x^3 - 5x^2 - 6x$

$y = x(x^2 - 5x - 6)$

$y = x(x-6)(x+1)$

$x = 0 \quad x - 6 = 0 \quad x + 1 = 0$

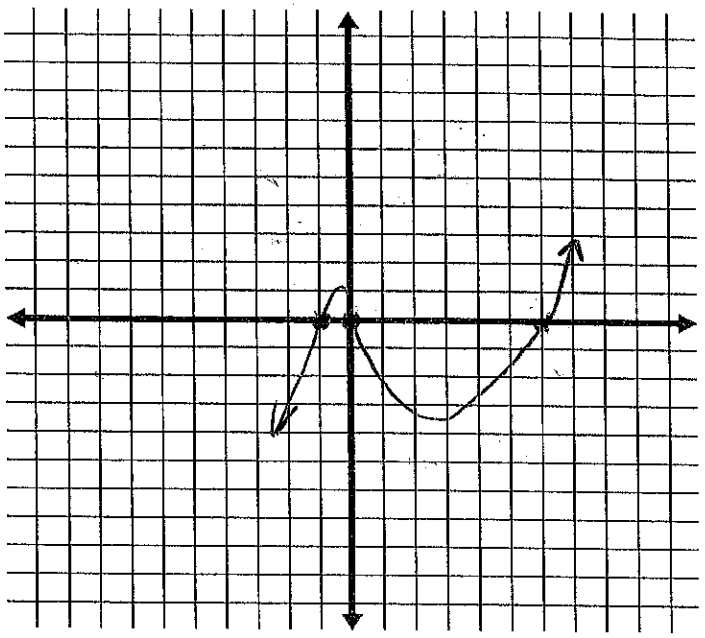
$x = 6 \quad x = -1$

odd ⊕

Zeros: $-1, 0, 6$

y-int: $(0,0)$

End Behavior: ↓↑



12) $y = 2x^3 + 10x^2 + 12x$

$y = 2x(x^2 + 5x + 6)$

$y = 2x(x+3)(x+2)$

$2x = 0 \quad x + 3 = 0 \quad x + 2 = 0$

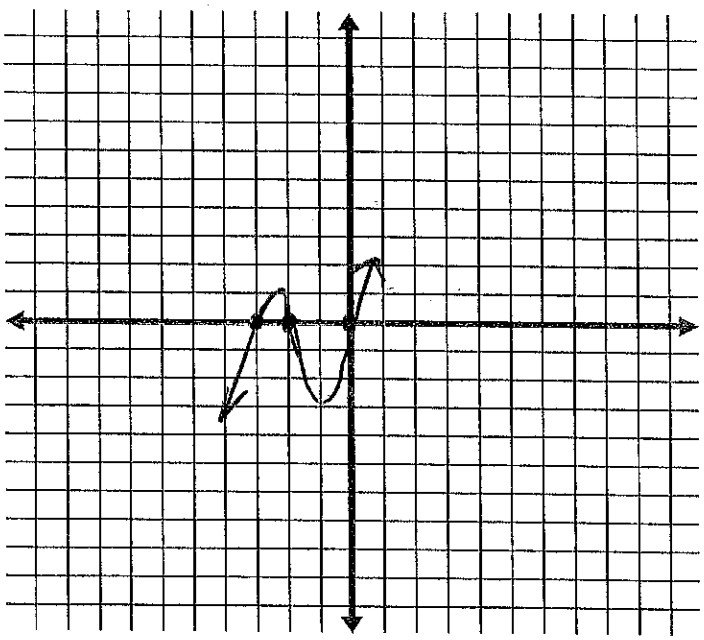
$x = 0 \quad x = -3 \quad x = -2$

odd ⊕

Zeros: $-3, -2, 0$

y-int: $(0,0)$

End Behavior: ↓↑



13) $y = -2x^3 + 12x^2 - 18x$

$y = -2x(x^2 - 6x + 9)$

$y = -2x(x-3)(x-3)$

$-2x = 0 \quad x-3=0 \quad x-3=0$

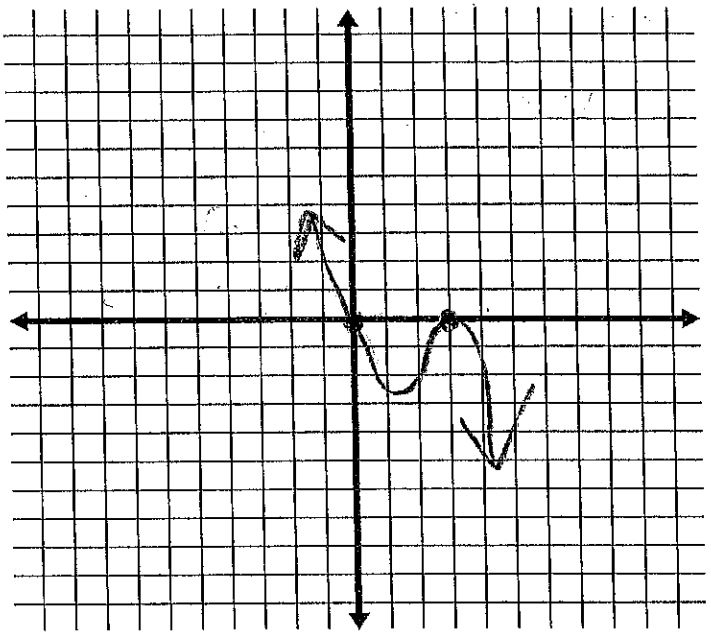
$x = 0 \quad x = 3 \quad x = 3$

odd (-)

Zeros: 3 (twice), 0

y-int: (0,0)

End Behavior: ↑↓



14) $y = x^4 - 25x^2$

$y = x^2(x^2 - 25)$

$y = x^2(x-5)(x+5)$

$x^2 = 0 \quad x-5=0 \quad x+5=0$

$x = 0 \quad x = 5 \quad x = -5$

even (+)

Zeros: -5, 0 (twice), 5

y-int: (0,0)

End Behavior: ↑↑